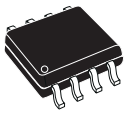
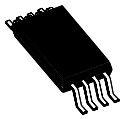
TS834

MICROPOWER VOLTAGE SUPERVISOR RESET ACTIVE LOW OR HIGH INTEGRATED TIMER

- ULTRA LOW POWER CONSUMPTION : 12µA max. @ V_{CC} = 5V
- BOTH ACTIVE HIGH AND ACTIVE LOW OUTPUTS
- RESET TIMER WITH DISABLE FUNCTION
- PRECISION RESET THRESHOLD (guaranteed over Temperature)
- 4.33V typ. THRESHOLD VOLTAGE
- GUARANTEED RESET OPERATION DOWN TO 1.5V
- OPEN DRAIN OUTPUT WITH
- Vol = 450mV typ.@ Iol = 8mA & V_{CC} = 4V
- FAST RESPONSE TIME : 20µs FOR A 10mV OVERDRIVE
- 100mV INTERNAL HYSTERESIS



D
SO8
(Plastic Micropackage)



P
TSSOP8
(Thin Shrink Small Outline Package)

DESCRIPTION

The TS834 is a voltage supervisor providing two different outputs (one active low and one active high) with an integrated timer that can be disabled.

It incorporates a high stability bandgap voltage reference and a comparator with open drain output.

The threshold voltage is set at 4.33V by internal thermally matched resistors.

The comparator exhibits a 20µs response (with 10mV overdrive).

An internal hysteresis of 100mV increases the comparator noise margin and prevents false reset operation.

APPLICATION

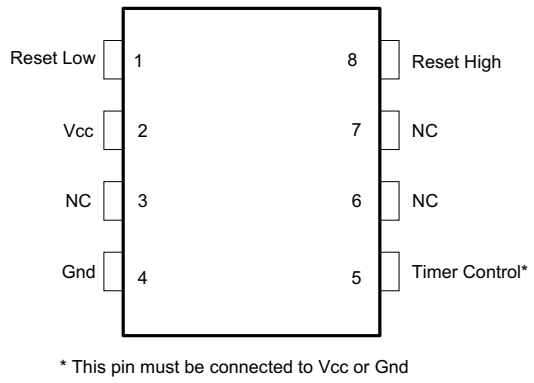
- Computers
- Microcontrollers
- Microprocessor systems
- Intelligent instruments
- Power failure detection

ORDER CODE

Part Number	Temperature Range	Package	
		D	P
TS834-5I	-40, +85°C	•	•

D = Small Outline Package (SO) - also available in Tape & Reel (DT)
P = Thin Shrink Small Outline Package (TSSOP) - only available in Tape & Reel (PT)

PIN CONNECTIONS (top view)



* This pin must be connected to Vcc or Gnd

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CC}	Supply Voltage [1]	7	V
V_{out}	Output Voltage - See note 1	-0.3 to V_{cc} + 0.3	V
I_{out}	Output Current	20	mA
Pd	Power Dissipation [2] SO8 TSSOP8	700 625	mW
T_{oper}	Operating Free Air Temperature Range	-40 to +85	°C
T_{stg}	Storage Temperature	-65 to +150	°C

1. All voltages values, except differential voltage are with respect to network ground terminal.
2. T_j = 150°C, T_{amb} = 25°C with Rthja = 175°C/W for SO8 package
   Rthja = 200°C/W for TSSOP8 package

OPERATING CONDITIONS

Symbol	Parameter	Value	Unit
V_{CC}	Supply Voltage	1.5 to 5.5	V
T_{oper}	Operating Free Air Temperature Range	-40 to +85	°C

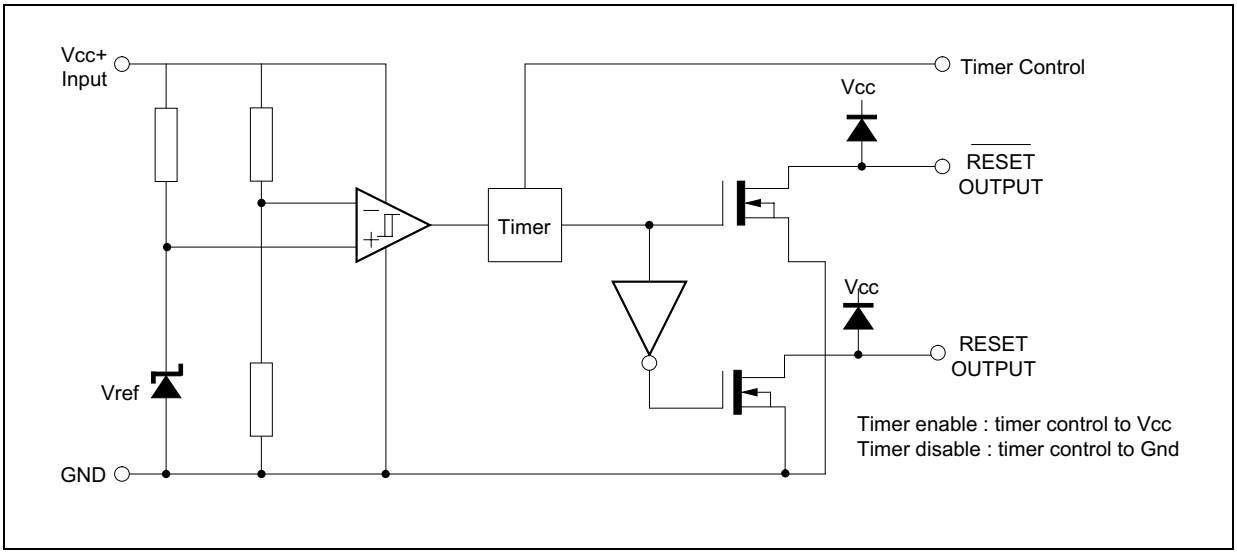
TS834-5

ELECTRICAL CHARACTERISTICS T_{amb} = 25°C (unless otherwise specified)

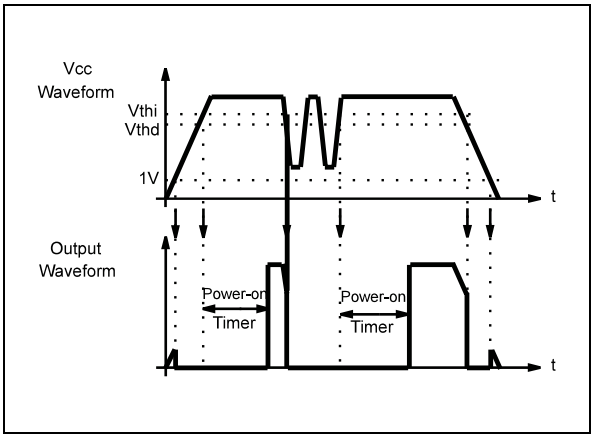
Symbol	Parameter	Min.	Typ.	Max.	Unit
V_{thi}	Threshold Voltage - V_{CC} Increasing T_{amb} = 25°C -40°C ≤ T_{amb} ≤ +85°C	 4.10	4.33	 4.46	V
V_{thd}	Threshold Voltage - V_{CC} Decreasing T_{amb} = 25°C -40°C ≤ T_{amb} ≤ +85°C	 4.10	4.23	 4.46	V
V_{hys}	Hysteresis Voltage	50	100	200	mV
I_{CC}	Current Consumption V_{CC} = 5V			12	µA
V_{OL1}	Low Level Output Voltage (OUTPUT 1) V_{CC} = 4V, I_{OL} = 8mA -40°C ≤ T_{amb} ≤ +85°C		450	800 1000	mV
V_{OL2}	Low Level Output Voltage (OUTPUT 2) V_{CC} = 5V, I_{OL} = 8mA -40°C ≤ T_{amb} ≤ +85°C		450	800 1000	mV
I_{OH1}	Low Level Output Voltage (OUTPUT 1) V_{CC} = 5V -40°C ≤ T_{amb} ≤ +85°C		2	40 1000	nA
I_{OH2}	Low Level Output Voltage (OUTPUT 2) V_{CC} = 4V -40°C ≤ T_{amb} ≤ +85°C		2	40 1000	nA
tphl	Response Time High to Low R_L = 10kΩ, C_L = 15pF, V_{CC} = V_{thd} -10mV		20		µs
trst	Reset Pulse width (Timer enabled) -40°C ≤ T_{amb} ≤ +85°C	125	300	500	ms

TIMING DIAGRAMS

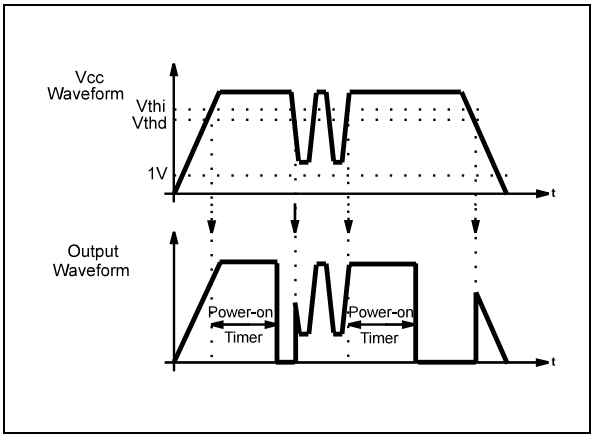
All the timung diagrams are given with outputs loaded by 10 kΩ resistors to V_{CC}



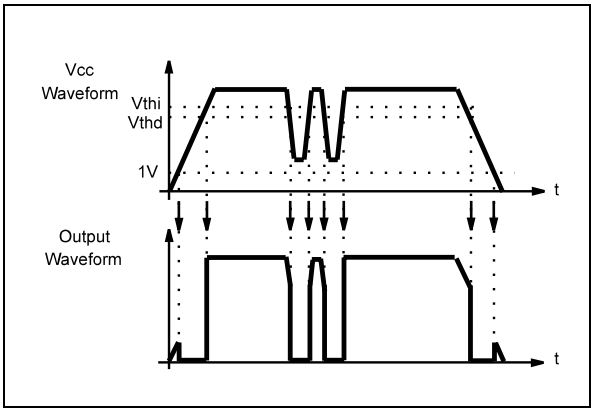
Active Low Reset, Timer Enabled



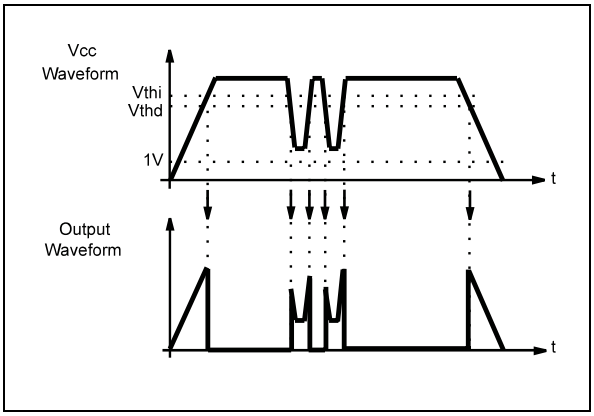
Active High Reset, Timer Enabled



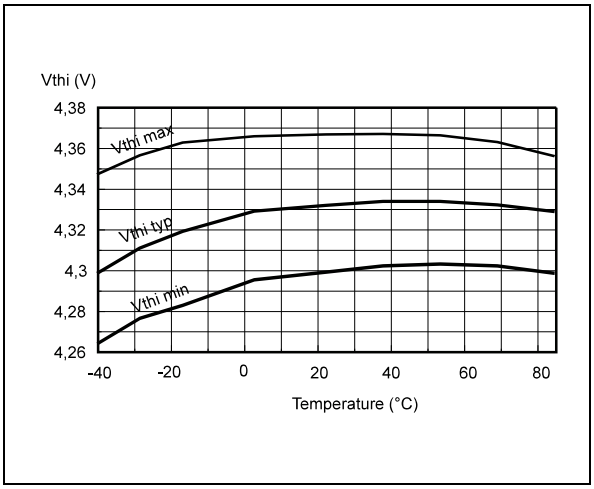
Active Low Reset, Timer Disabled



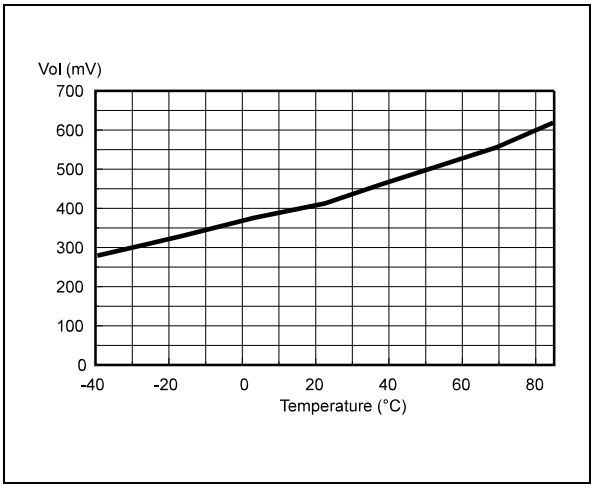
Active High Reset, Timer Disabled



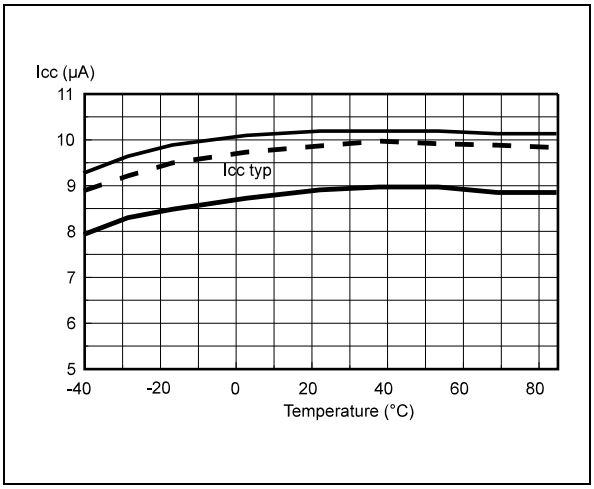
Voltage Threshold (Vthi) vs Temperature



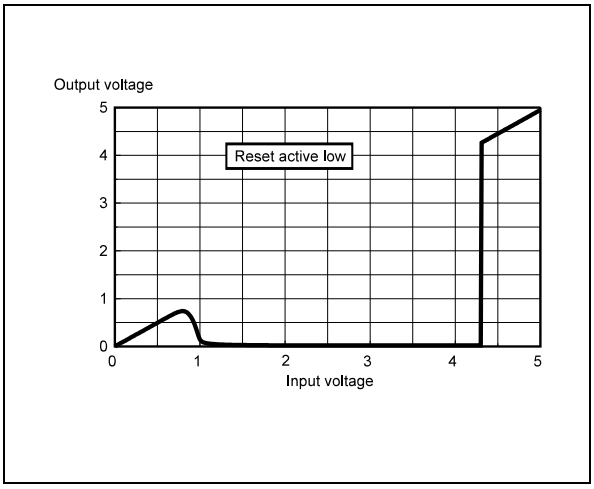
Vol vs Temperature



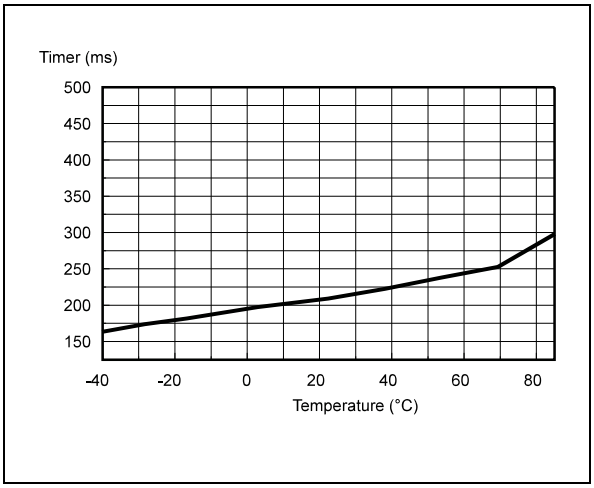
Current Consumption vs Temperature



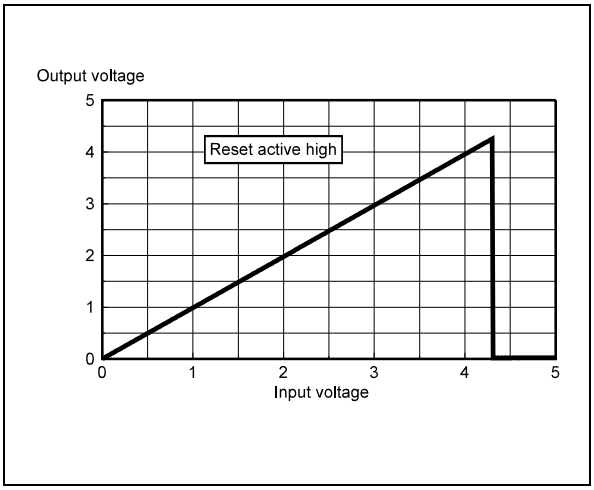
Output Voltage vs Input



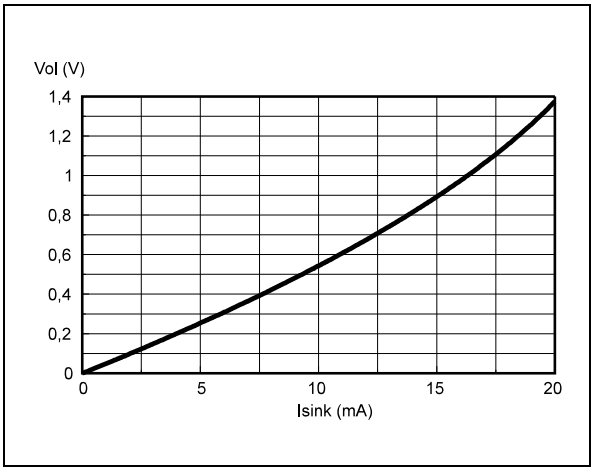
Timer Period (trst) vs Temperature



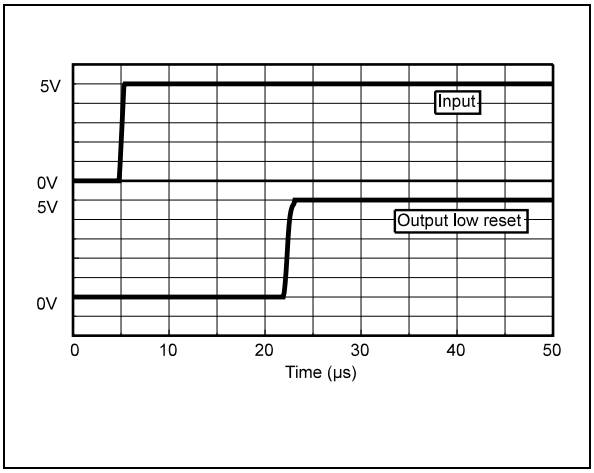
Output Voltage vs Input



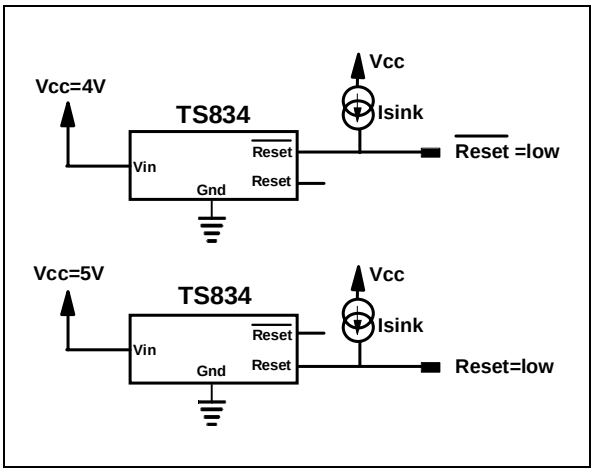
Vol vs Isink



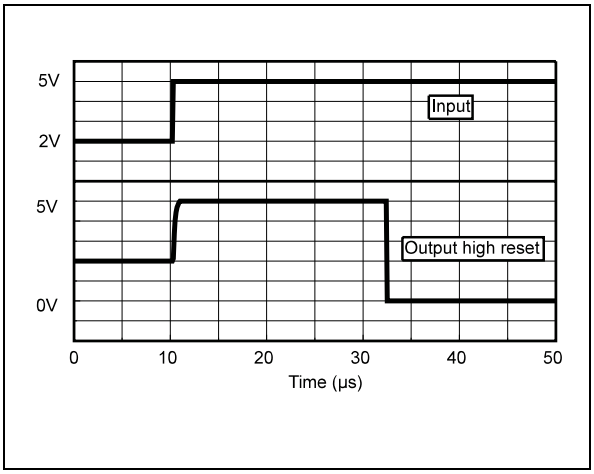
Reset High After V_{cc} Tansition (timer disabled)



Schematic to Measure Vol vs Isink

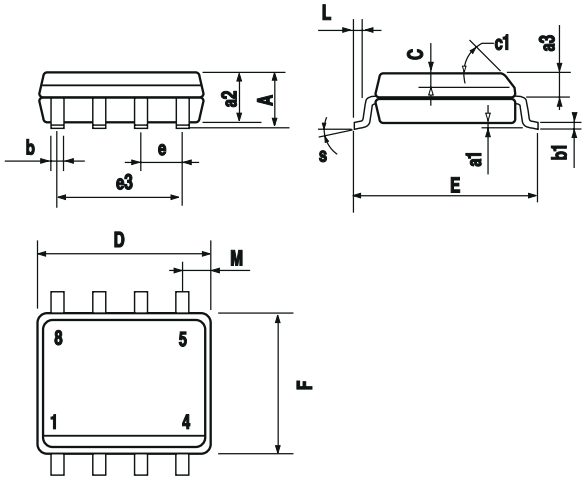


Reset Low After V_{cc} Tansition (timer disabled)



PACKAGE MECHANICAL DATA

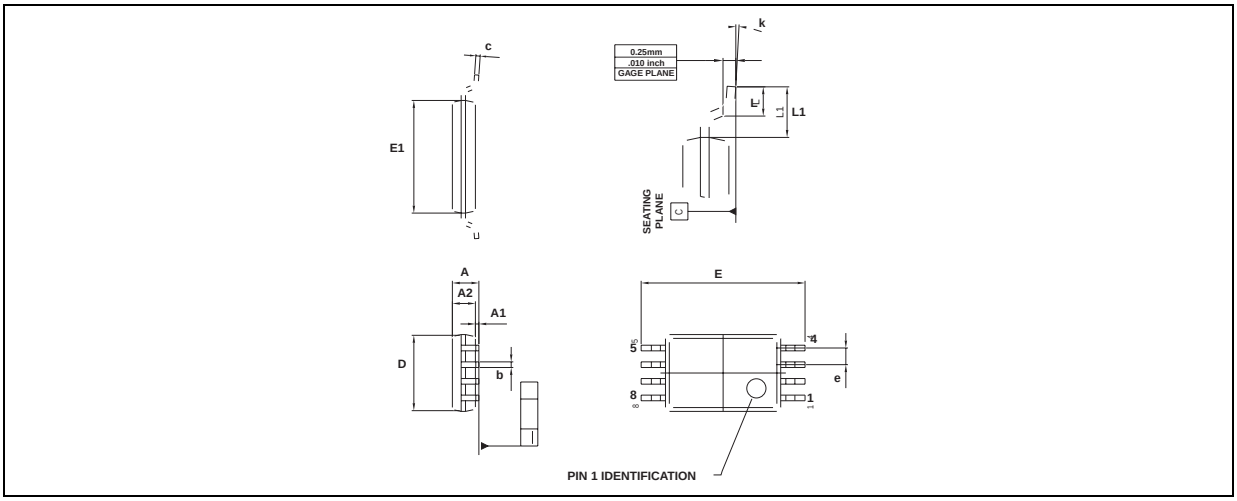
8 PINS - PLASTIC MICROPACKAGE (SO)



Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			1.75			0.069
a1	0.1		0.25	0.004		0.010
a2			1.65			0.065
a3	0.65		0.85	0.026		0.033
b	0.35		0.48	0.014		0.019
b1	0.19		0.25	0.007		0.010
C	0.25		0.5	0.010		0.020
c1	45° (typ.)					
D	4.8		5.0	0.189		0.197
E	5.8		6.2	0.228		0.244
e		1.27			0.050	
e3		3.81			0.150	
F	3.8		4.0	0.150		0.157
L	0.4		1.27	0.016		0.050
M			0.6			0.024
S	8° (max.)					

PACKAGE MECHANICAL DATA

8 PINS - THIN SHRINK SMALL OUTLINE PACKAGE



Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			1.20			0.05
A1	0.05		0.15	0.01		0.006
A2	0.80	1.00	1.05	0.031	0.039	0.041
b	0.19		0.30	0.007		0.15
c	0.09		0.20	0.003		0.012
D	2.90	3.00	3.10	0.114	0.118	0.122
E		6.40			0.252	
E1	4.30	4.40	4.50	0.169	0.173	0.177
e		0.65			0.025	
k	0°		8°	0°		8°
l	0.50	0.60	0.75	0.09	0.0236	0.030
L	0.45	0.600	0.75	0.018	0.024	0.030
L1		1.000			0.039	

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